AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An apparatus for selecting one of an open-loop first transmit antenna diversity scheme and closed-loop second transmit antenna diversity schemes by a user equipment (UE) in a system including a Node B transmitter which includes at least two antennas and uses the first transmit antenna diversity scheme for transmitting space time transmit diversity (STTD)-encoded signals via the antennas and the second transmit antenna diversity scheme for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from the UE, the apparatus comprising:

a channel estimator for receiving a first channel signal from the Node B transmitter, and estimating a channel response from the received first channel signal;

a determiner for estimating a variation speed of the first channel based on the estimated channel response, and selecting one of the first and second transmit antenna diversity schemes according to the estimated variation speed of the first channel; and

an information generator for generating information indicating the selected transmit antenna diversity scheme.

2. (original) The apparatus of claim 1, wherein the determiner calculates an autocorrelation value of the channel response, and estimates a speed value mapped to the autocorrelation value as a variation speed of the first channel.

3. (original) The apparatus of claim 1, wherein the information indicating the selected transmit antenna diversity scheme includes a field indicating the selected transmit antenna diversity scheme and a field indicating a weight applied when the selected transmit antenna diversity scheme is used.

4. (original) The apparatus of claim 1, wherein the first channel is a pilot channel.

5. (currently amended) An apparatus for selecting, by a Node B, an open-loop first transmit antenna diversity scheme and closed-loop second transmit antenna diversity scheme~~one of first and second transmit antenna diversity schemes~~ and transmitting a channel signal according to the selected transmit antenna diversity scheme in a system ~~including the Node B which includes at least two antennas and uses the first transmit antenna diversity scheme for transmitting space time transmit diversity (STTD) encoded signals via the antennas and the second transmit antenna diversity scheme for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from a user equipment (UE)~~, the apparatus comprising:

a Node B which includes at least two antennas and uses the first transmit antenna diversity scheme for transmitting space time transmit diversity (STTD)-encoded signals via the antennas and the second transmit antenna diversity scheme for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from a user equipment (UE);

an information extractor for receiving a first channel signal from the UE, and detecting, from the received first channel signal, information indicating one of the first and second transmit antenna diversity schemes, selected by the UE;

a controller for determining a transmit antenna diversity scheme to be applied to channel signals to be transmitted by the Node B, based on the detected information; and

a transmitter for encoding the channel signals according to the determined transmit antenna diversity scheme and transmitting the encoded channel signals.

6. (original) The apparatus of claim 5, wherein the information indicating the transmit antenna diversity scheme includes a field indicating the selected transmit

antenna diversity scheme and a field indicating a weight applied when the selected transmit antenna diversity scheme is used.

7. (previously presented) The apparatus of claim 6, wherein the transmitter comprises:

a converter for encoding the channel signals according to the determined transmit antenna diversity scheme;

at least two multipliers for individually multiplying the encoded channel signals by corresponding weights to be applied to the transmit antenna diversity scheme; and

at least two summers for individually summing up the weighted encoded channel signals and corresponding pilot signals, and transmitting the summation results.

8. (original) The apparatus of claim 5, wherein the first channel is a dedicated physical control channel.

9. (currently amended) A method for selecting one of an open-loop first transmit antenna diversity scheme and closed-loop second transmit antenna diversity scheme~~first and second transmit antenna diversity schemes~~ by a user equipment (UE) in a system including a Node B transmitter which includes at least two antennas and uses the first transmit antenna diversity scheme for transmitting space time transmit diversity (STTD)-encoded signals via the antennas and the second transmit antenna diversity scheme for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from the UE, the method comprising the steps of:

receiving a first channel signal from the Node B transmitter;

estimating a channel response from the received first channel signal;

estimating a variation speed of the first channel based on the estimated channel response;

selecting one of the first and second transmit antenna diversity schemes according to the estimated variation speed of the first channel; and

transmitting information indicating the selected transmit antenna diversity scheme to the Node B transmitter.

10. (original) The method of claim 9, wherein the step of estimating a variation speed of the first channel comprises the step of calculating an autocorrelation value of the channel response, and estimating a speed value mapped to the autocorrelation value as a variation speed of the first channel.

11. (original) The method of claim 9, wherein the information indicating the selected transmit antenna diversity scheme includes a field indicating the selected transmit antenna diversity scheme and a field indicating a weight applied when the selected transmit antenna diversity scheme is used.

12. (original) The method of claim 9, wherein the first channel is a pilot channel.

13. (original) A method for selecting, by a Node B, one of an open-loop first transmit antenna diversity scheme and closed-loop second transmit antenna diversity scheme~~first and second transmit antenna diversity schemes~~ and transmitting a channel signal according to the selected transmit antenna diversity scheme in a system ~~including the Node B which includes at least two antennas and uses the first transmit antenna diversity scheme for transmitting space time transmit diversity (STTD) encoded signals via the antennas and the second transmit antenna diversity scheme for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from a user equipment (UE)~~, the method comprising the steps of:

receiving a first channel signal from the User Equipment (UE);

detecting, from the received first channel signal, information indicating one of the first and second transmit antenna diversity schemes, selected by the UE, wherein

the first transmit antenna diversity scheme is used for transmitting space time transmit diversity (STTD)-encoded signals via the antennas and the second transmit antenna diversity scheme is used for controlling a phase of signals transmitted from the antennas in response to feedback information including relative phase difference information of the antennas from a user equipment (UE);

determining a transmit antenna diversity scheme to be applied to channel signals to be transmitted by the Node B, based on the detected information; and

encoding the channel signals according to the determined transmit antenna diversity scheme and transmitting the encoded channel signals.

14. (original) The method of claim 13, wherein the information indicating the transmit antenna diversity scheme includes a field indicating the selected transmit antenna diversity scheme and a field indicating a weight applied when the selected transmit antenna diversity scheme is used.

15. (previously presented) The method of claim 14, wherein the step of encoding the channel signals according to the determined transmit antenna diversity scheme and transmitting the encoded channel signals comprises the steps of:

encoding the channel signals according to the determined transmit antenna diversity scheme;

individually multiplying the encoded channel signals by corresponding weights to be applied to the transmit antenna diversity scheme; and

individually summing up the weighted encoded channel signals and corresponding pilot signals, and transmitting the summation results.

16. (original) The method of claim 13, wherein the first channel is a dedicated physical control channel.